SONY

HD MASTER SET-UP KIT

HKCF-700

HDVS

INSTALLATION AND MAINTENANCE MANUAL

1st Edition (Revised 3)

⚠警告

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お客様が，このマニュアルに記載された設置や保守，点検，修理など行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠ AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

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Manual Structure

Purpose of this manual

This manual is the maintenance manual for HD MASTER SET-UP KIT HKCF-700. This manual describes the information items necessary when the unit is supplied and installed, items that premise the service based on the components parts such as alignment, schematic diagrams, board layouts and spare parts lists, assuming use of system and service engineers.

Contents

The following are summaries of the each section for understanding the manual.

Section 1 Installation

Describes how to install the HKCF-700 in the CNU-500/700 and MSU-700.

Section 2 Spare Parts

Describes electrical parts list used in the unit.

Section 3 Semiconductor Pin Assignments

Describes function diagrams and pin names of semiconductor used in the unit.

Section 4 Schematic Diagrams

Describes schematic diagrams for every circuit board.

Section 5 Board Layouts

Describes board layouts for every circuit board.

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Section 1
Installation

By installing the HKCF-700 in the CNU-500/CNU-700 and MSU-700 respectively, they can be activated in the HD system.
This section explains how to install the HKCF-700 in the CNU-500/CNU-700.

Configuration of HKCF-700

For CNU-500
- IF-625 board
- CNU-500 harness (15P-15P)

For CNU-700
- IF-624 board
- CNU-700 harness (12P-15P)
- RS-422 harness (30P-30P)

1-1. Installing HKCF-700 in CNU-500

Confirmation of ROM version

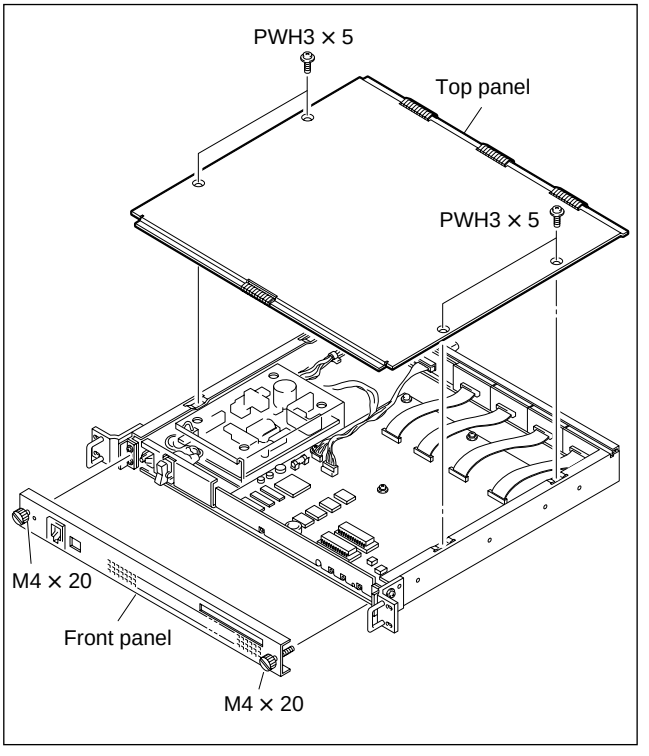
Be sure to check that the ROMs version for IC4 and IC5 on the AT-100 board in CNU-500 are V2.71 and higher. If ROM replacement is required, contact your local Sony Sales Office/Service Center.

1-1-1. Modifying AT-100 Board

Modifying the AT-100 board is necessary prior to installation. Proceed as follows. You can modify without removing the AT-100 board from the CNU-500.

Preparation

Loosen the two screws to remove the front panel. Remove the four screws to remove the top panel.



Parts required

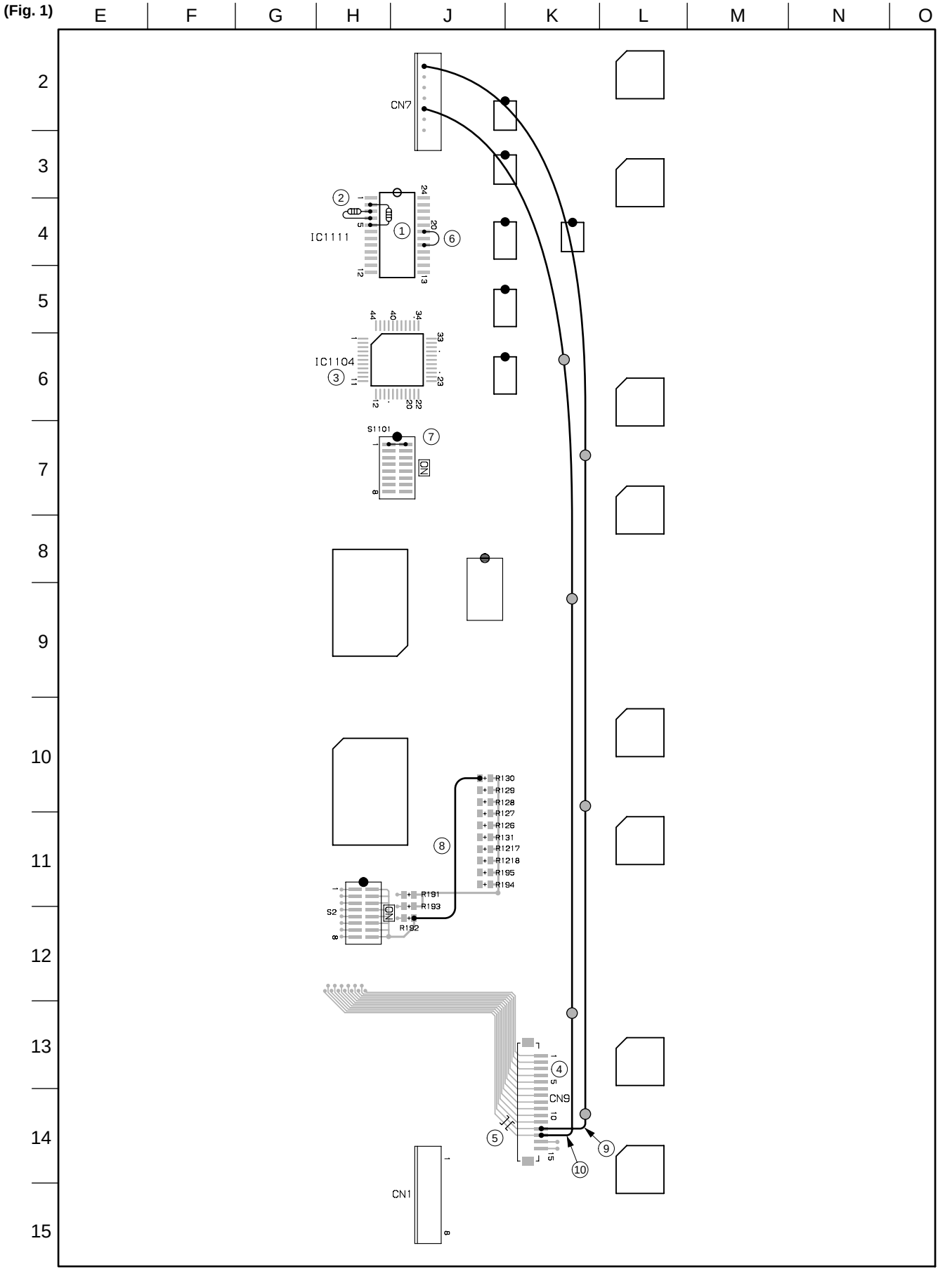
The following are not supplied with the unit. Get them ready.

Description	P/N	Q'ty
Resister, Carbon 100 Ω	1-247-807-11	2
IC uPD71051GB-10-3B4	8-759-149-05	1
Board Connector (15P)	1-695-209-11	1
Jumper Wire (l = 10 mm)	—	2
Jumper Wire (l = 35 mm)	—	1
Jumper Wire (l = 210 mm)	—	1
Jumper Wire (l = 215 mm)	—	1
Sony Bond SC608LVZ	7-432-912-52	1

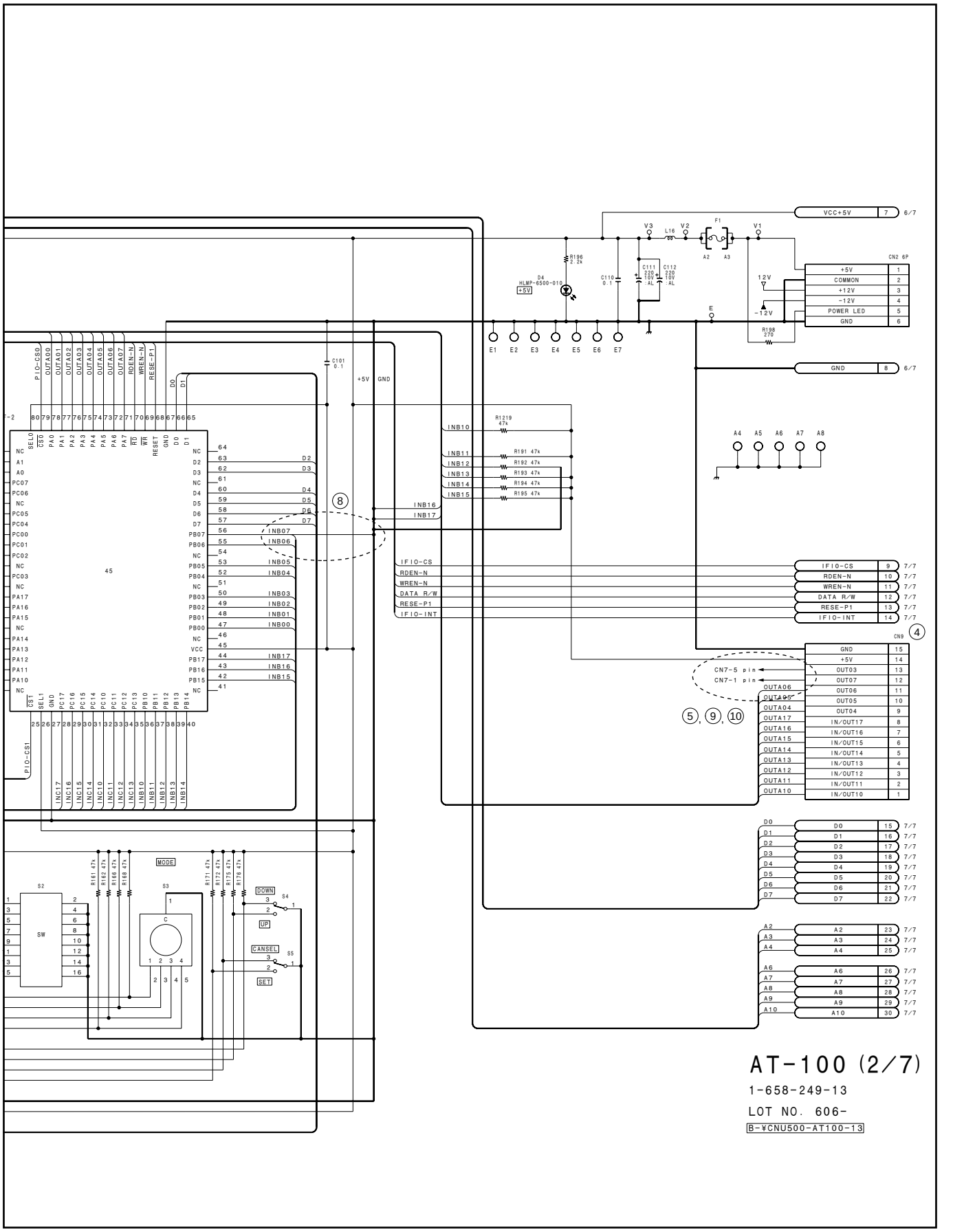
1. Solder a 100-ohm carbon resistor between pins 2 and 5 of IC1111 (H-4). (See Fig 1−①)
2. Solder a 100-ohm carbon resistor between pins 3 and 4 of IC1111 (H-4). (See Fig 1−②)
3. Solder IC (uPD71051GB-10-3B4) at the traces of IC1104 (H-6). (See Fig 1−③)
4. Solder a board connector (15P) at the traces of CN9 (K-13). (See Fig 1−④)
5. Cut traces at pins 12 and 13 of CN9 (K-13). (See Fig 1−⑤)
6. Solder five jumper wires between the followings.
   (1) Between pins 17 and 19 of IC1111* (l = 10 mm) (See Fig 1−⑥)
   (2) Between pins 1 and 2 of S1101 (l = 10 mm) (See Fig 1−⑦)
   (3) Between R130 (pin 56/IC45 side) and R192 (GND side) (l = 30 mm) (See Fig 1−⑧)
   (4) Between pin 12 of CN9 and pin 1 of CN7* (l = 215 mm) (See Fig 1−⑨)
   (5) Between pin 13 of CN9 and pin 5 of CN7* (l = 210 mm) (See Fig 1−⑩)
7. Glue 215 mm long and 210 mm long jumper wires on the AT-100 board with a Sony Bond at three points (at least) as shown in Fig 1 in a shaded pattern.

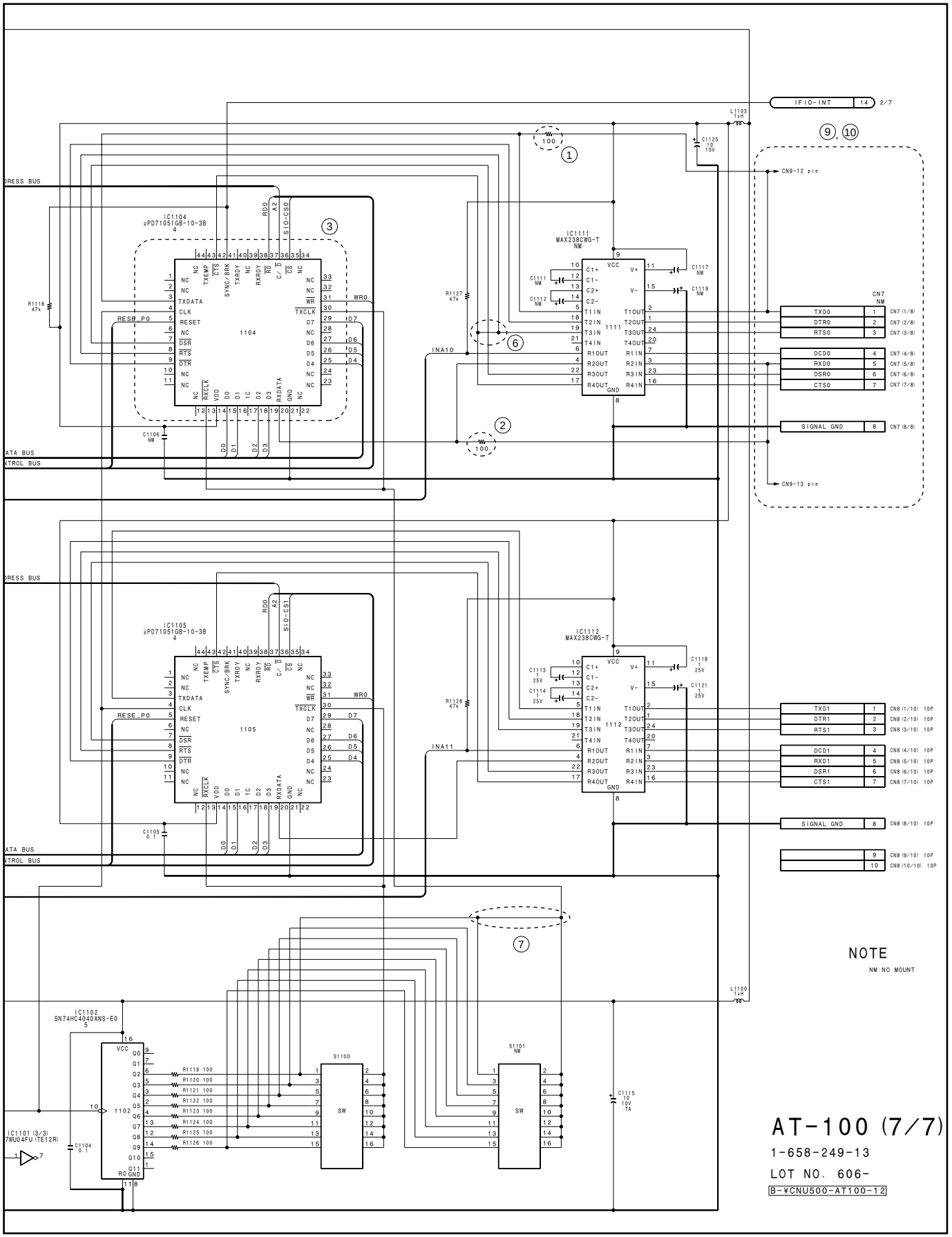
* No electrical part is mounted at IC1111 and CN7.

(Fig. 1)



AT-100 board (Component side)


AT-100 (2/7)
1-658-249-13
LOT NO. 606-
B-¥CNU500-AT100-13
VCC+5V
GND
IFIO-CS
RDEN-N
WREN-N
DATA R/W
RESE-P1
IFIO-INT
CN2 6P
+5V
COMMON
+12V
-12V
POWER LED
GND
CN9
MODE
DOWN
UP
CANSEL
SET


IFIO-INT
14
2/7
IC1104
μPD71051GB-10-3B
IC1105
μPD71051GB-10-3B
IC1111
MAX238CWG-T
NM
IC1112
MAX238CWG-T
IC1102
SN74HC4040ANS-E0
IC1101 (3/3)
7WU04FU (TE12R)
S1100
S1101
SW
CN7
NM
TXD0
DTR0
RTS0
DCD0
RXD0
DSR0
CTS0
SIGNAL GND
CN9-12 pin
CN9-13 pin
TXD1
DTR1
RTS1
DCD1
RXD1
DSR1
CTS1
CN8 (1/10) 10P
CN8 (2/10) 10P
CN8 (3/10) 10P
CN8 (4/10) 10P
CN8 (5/10) 10P
CN8 (6/10) 10P
CN8 (7/10) 10P
CN8 (8/10) 10P
CN8 (9/10) 10P
CN8 (10/10) 10P
INA10
INA11
L1103
1μH
L1100
1μH
NOTE
NM:NO MOUNT
AT-100 (7/7)
1-658-249-13
LOT NO. 606-
B-¥CNU500-AT100-12

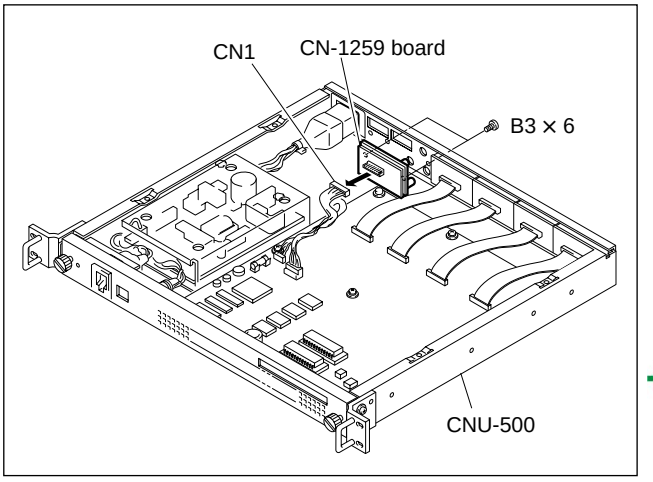
1-1-2. Replacing PC Board/Harness

Parts required

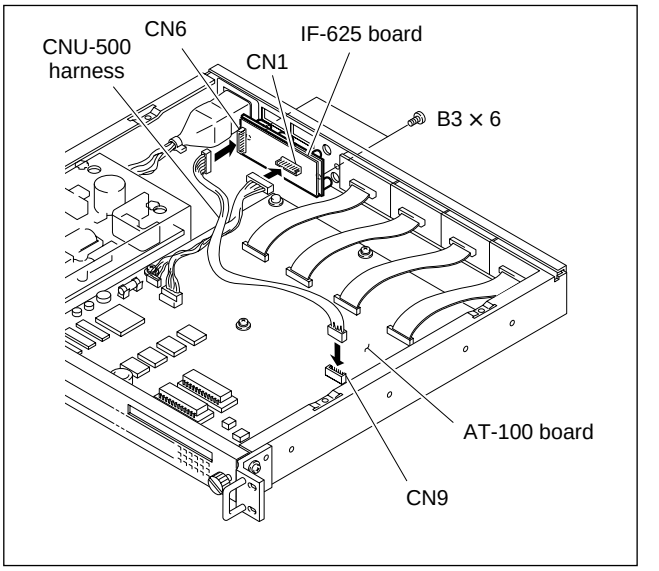
The following are supplied with the unit.

Description	Q'ty
IF-625 Board	1
CNU-500 Harness (15P-15P)	1

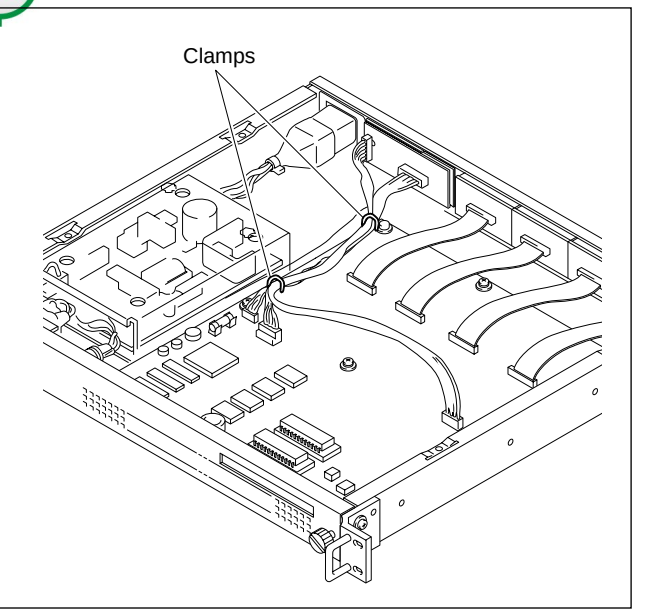
1. Remove the two screws (B3 × 6) from the rear panel to remove the CN-1259 board.
2. Disconnect the connector CN1 from the CN-1259 board.



3. Connect the connector disconnected in Step 2 to CN1 on the IF-625 board.
4. Connect between CN6 on the IF-625 board and CN9 on the AT-100 board with a CNU-500 harness.
5. Install the IF-625 board to the rear panel by the two screws which were removed in Step 1.



6. Fasten the CNU-500 harness by two clamps.



7. Set the switch S2-2 on the AT-100 board according to a waveform monitor to be used.
   ON : HD ANALOG system waveform monitor (Sony Tektronix 1730HD or equivalent)
   OFF : RECALL system waveform monitor
8. Install the top panel and front panel in the reverse order of removal.

1-2. Installing HKCF-700 in CNU-700

Confirmation of ROM version

Be sure to check that the ROMs version for IC4 and IC5 on the AT-89/89A board in CNU-700 are V2.10 and higher.
If ROM replacement is required, contact your local Sony Sales Office/Service Center.

1-2-1. Modifying AT-89 Board

If you install the HKCF-700 in the CNU-700 with the following serial number, modifying the AT-89 board is necessary prior to installation. Proceed as follows.

Applicable Serial No.

CNU-700 (UC) 10001 through 15080
CNU-700 (J) 30001 through 35015
CNU-700 (CE) 40001 through 45040

∗ It is unnecessary to modify the CNU-700 with the following serial number.
CNU-700 (UC) 15081 and higher
CNU-700 (J) 35016 and higher
CNU-700 (CE) 45041 and higher

Preparation

Remove the front panel of the CNU-700 and pull the AT-89 board out of the third slot from the top.
(Refer to Section 1-2-2, Steps 9 and 10.)

Parts required

The following are not supplied with the unit. Get them ready.

Description	P/N	Q'ty
Board Connector (30P)	1-561-772-00	2

Solder two board connectors (30P) at the traces of CN1 (D-3) and CN2 (F-3) respectively on the AT-89 board.

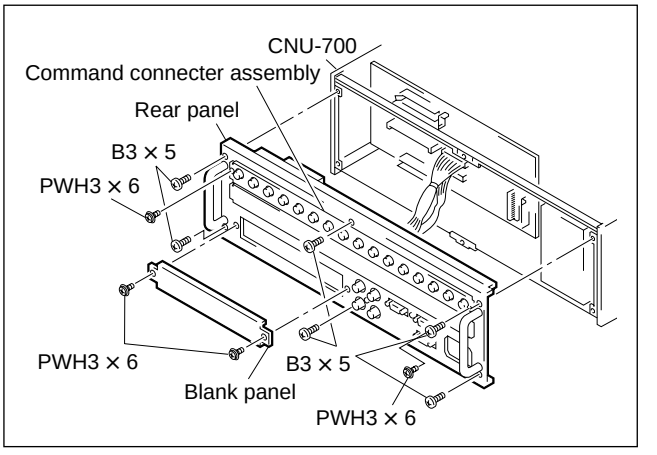
1-2-2. Replacing PC Board/Harness

Parts required

The following are supplied with the unit.

Description	Q'ty
IF-624 Board	1
RS-422 Harness (30P-30P)	1
CNU-700 Harness (12P-15P) (with HKCF panel attached)	1
PC Board Spacer	1

1. Remove the two screws (PWH3 × 6) to remove the command connector assembly.
2. Remove the six screws (B3 × 5) to remove the rear panel.
3. Remove the two screws (PWH3 × 6) to remove the blank panel from the rear panel.



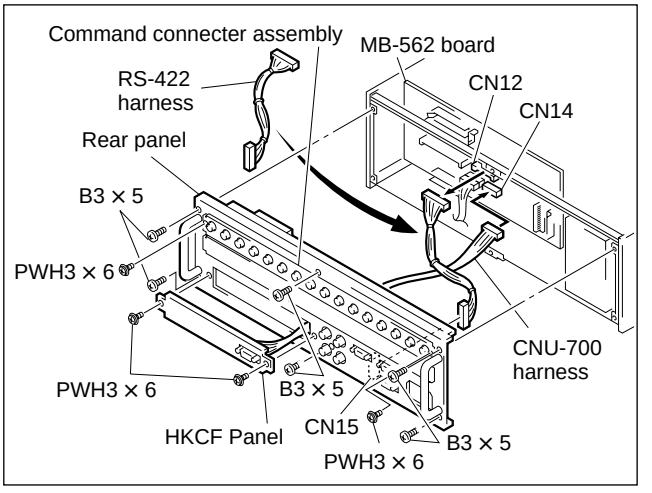
4. Install the HKCF panel (with harness) to the rear panel by the two screws which were removed in Step 3.
5. Connect the CNU-700 harness to CN14 on the MB-562 board.
6. Disconnect the harness between CN12 on the MB-562 board and CN15 on the CN-1001 board and then reconnect between them with the supplied RS-422 harness.

Note

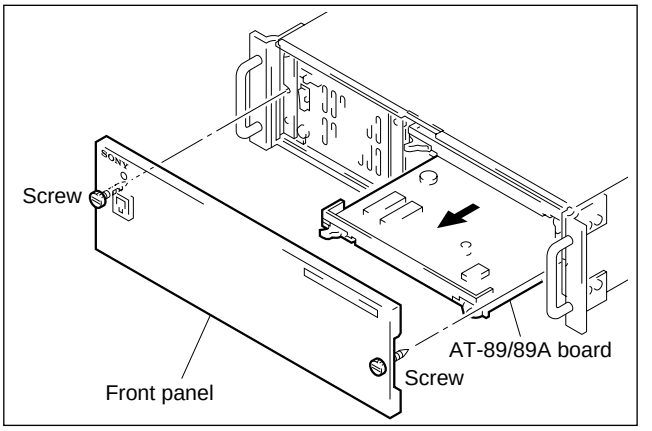
Connect the RS-422 harness observing the correct orientation.
The following two labels are put on the housing surface at each end of the RS-422 harness.

15 → To CN15/CN-1001 board
12 → To CN12/MB-562 board

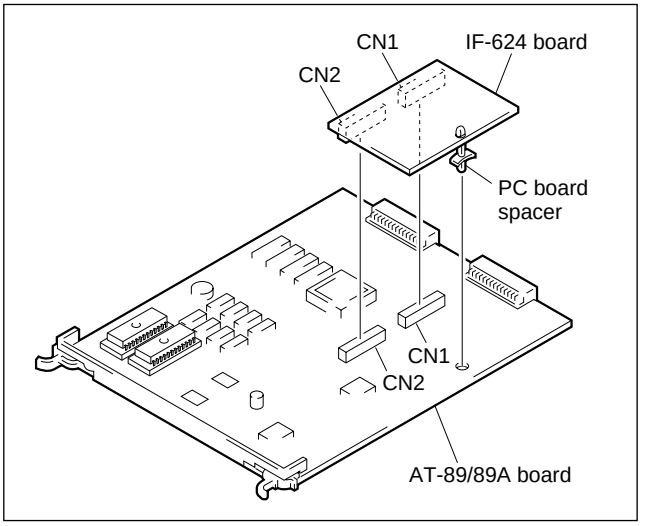
7. Install the command connector assembly in the reverse order of removal.
8. Install the rear panel by the six screws in the reverse order of removal.



9. Loosen the two screws to remove the front panel.
10. Pull the AT-89/AT-89A board out of the third slot from the top.



11. Set the switch S1-1 on the IF-624 board according to a waveform monitor to be used.
ON : HD ANALOG system waveform monitor (Sony Tektronix 1730HD or equivalent)
OFF : RECALL system waveform monitor
12. Secure the IF-624 board to the AT-89/AT-89A board by using the supplied PC board spacer while connecting CN1 to CN1 and CN2 to CN2 each other.



13. Pull the IF-480/IF-777 board out of the first slot from the top. Set the switches on the IF-480/IF-777 board as follows.
S802 to S806 : Short-circuit between Pins 2 and 3 by a short plug (to provide an RS-422 command interface)
S901 : Set S901-4 to ON, and S901-5 and S901-6 to OFF (to establish a 38.4 kbps baud rate)

Note

Some CNU-700 has an optional IF-480/IF-777 board in its second slot. For the optional board, however, the above switch settings are not needed.
(If the setting is changed, it will be ignored.)

14. Return the AT-89/AT-89A and IF-480/IF-777 boards to their normal position.
15. Reinstall the front panel.

1-3. Setting MSU Master Control Unit

Confirmation of ROM version

If using a MSU-700 in the system, be sure to check the ROM version for IC10 on the CPU-171 board is V3.01 or higher.
If ROM replacement is required, contact your local Sony Sales Office/Service Center.
If using a MSU-700A/750, you do not have to replace the ROM.

Setting of the MSU Assignment

Set the control mode to the LOCAL MSU mode (LOCAL mode) using the MSU assignment menu. Refer to the BVP-900-series System Manual BKP-9901 (available separately) Section 3-4-3 “MSU Assignment” for the setting procedure.

1-4. Setting Switches for Digital Video Selector/Routing Switcher

As for system configurations, refer to the operation manual supplied with HDCU-700A.

Cascading HD digital video selector MP1007A

When connecting up to nine cameras, set the REMOTE2 unit address switch “1” of the MP1007A to ON and the other unit address switches to OFF.
When connecting ten or more cameras and cascading the HD digital video selectors, set the unit address switch “2” of the second selector to ON and the others to OFF. And set the command mode to “NO RETURN RESPONSE” for the both HD digital video selectors.

SD digital video routing switcher DVS-V1201

When connecting up to 12 cameras, set the REMOTE2 unit address switch “5” of the DVS-V1201 to ON and the other unit address switches to OFF.
And set the command mode to “NO RETURN RESPONSE” for the SD digital video routing switchers.

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Section 2
Spare Parts

2-1. Notes on Repair Parts

1. Safety Related Components Warning

WARNING

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

Parts marked with “o” at SP (Supply Code) column of the spare parts list may be not stocked. Therefore, the delivery date will be delayed.

4. Units Representation

The following represented units are changed or omitted in writing.

Units		Representation
Capacitance	µF	uF
Inductance	µH	uH
Resistance	Ω	Abbreviation

2-2. Electrical Parts List

IF-624 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8273-738-A	o	MOUNTED CIRCUIT BOARD, IF-624
C1	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C2	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C3	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C4	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C5	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C6	1-104-852-11	s	TANTAL 22uF 20% 10V
CN1	1-564-238-11	o	CONNECTOR, 30P, MALE
CN2	1-564-238-11	o	CONNECTOR, 30P, MALE
IC1	8-759-154-60	s	IC UPD71055GB-10-3B4
IC2	8-759-082-57	s	IC TC7W04FU
IC3	8-759-049-70	s	IC SN74HC138APW-E05
IC4	8-759-050-06	s	IC SN74HC157APW-E05
IC5	8-759-050-06	s	IC SN74HC157APW-E05
IC6	8-759-050-06	s	IC SN74HC157APW-E05
IC7	8-759-049-76	s	IC SN74HC244APW-E05
IC8	8-759-049-76	s	IC SN74HC244APW-E05
L1	1-412-026-11	s	INDUCTOR CHIP 1uH
L2	1-412-026-11	s	INDUCTOR CHIP 1uH
L3	1-412-026-11	s	INDUCTOR CHIP 1uH
L4	1-412-026-11	s	INDUCTOR CHIP 1uH
L5	1-410-381-11	s	INDUCTOR, CHIP 10uH
R1	1-218-740-11	s	METAL, CHIP 100K 0.50% 1/16W
R2	1-218-740-11	s	METAL, CHIP 100K 0.50% 1/16W
R3	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R4	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R5	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R6	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R7	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R8	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R9	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R10	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R11	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R12	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
RB1	1-236-904-11	s	NETWORK RESISTOR (CHIP) 1.0K
RB2	1-236-904-11	s	NETWORK RESISTOR (CHIP) 1.0K
RB3	1-236-904-11	s	NETWORK RESISTOR (CHIP) 1.0K
RB4	1-239-308-11	s	RESISTOR BLOCK, CHIP 47kx8
S1	1-571-967-11	s	SWITCH, DIP 8-CKT

IF-625 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8273-740-A	o	MOUNTED CIRCUIT BOARD, IF-625
1pc	3-603-242-01	o	CONNECTOR PLATE(D SUB)
6pcs	3-711-228-01	o	STANDOFF, D-SUB CONN.
C1	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C2	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C3	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C4	1-104-852-11	s	TANTAL 22uF 20% 10V
C5	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
CN1	1-506-478-11	o	CONNECTOR, 13P, MALE
CN2	1-563-890-21	s	CONNECTOR, D-SUB 9P, FEMALE
CN3	1-562-382-31	s	CONNECTOR, BNC, FEMALE
CN4	1-562-382-31	s	CONNECTOR, BNC, FEMALE
CN5	1-562-382-31	s	CONNECTOR, BNC, FEMALE
CN6	1-695-209-11	s	CONNECTOR, 15P, MALE
CN7	1-563-826-21	s	CONNECTOR D-SUB 15P, FEMALE
CN8	1-563-890-21	s	CONNECTOR, D-SUB 9P, FEMALE
FB1	1-543-775-11	s	FILTER, EMI
FB2	1-543-775-11	s	FILTER, EMI
FB3	1-543-775-11	s	FILTER, EMI
FB4	1-543-775-11	s	FILTER, EMI
FB5	1-543-775-11	s	FILTER, EMI
FB6	1-543-775-11	s	FILTER, EMI
FB7	1-543-775-11	s	FILTER, EMI
FB8	1-543-775-11	s	FILTER, EMI
FB9	1-543-775-11	s	FILTER, EMI
IC1	8-759-049-70	s	IC SN74HC138APW-E05
IC2	8-759-050-06	s	IC SN74HC157APW-E05
IC3	8-759-050-06	s	IC SN74HC157APW-E05
IC4	8-759-050-06	s	IC SN74HC157APW-E05
IC5	8-759-049-76	s	IC SN74HC244APW-E05
IC6	8-759-049-76	s	IC SN74HC244APW-E05
IC7	8-759-054-56	s	IC SN75179BPS
L1	1-412-026-11	s	INDUCTOR CHIP 1uH
L2	1-412-026-11	s	INDUCTOR CHIP 1uH
L3	1-412-026-11	s	INDUCTOR CHIP 1uH
L4	1-410-381-11	s	INDUCTOR, CHIP 10uH
R1	1-218-740-11	s	METAL, CHIP 100K 0.50% 1/16W
R2	1-218-740-11	s	METAL, CHIP 100K 0.50% 1/16W
R3	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R4	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R5	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R6	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R7	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R8	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R9	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R10	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R11	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R12	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R13	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R14	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R15	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R16	1-218-732-11	s	METAL, CHIP 47K 0.50% 1/16W
R17	1-211-969-11	s	METAL, CHIP 10 0.50% 1/16W
R18	1-211-969-11	s	METAL, CHIP 10 0.50% 1/16W
R19	1-218-724-11	s	METAL, CHIP 22K 0.50% 1/16W
R20	1-218-724-11	s	METAL, CHIP 22K 0.50% 1/16W
R21	1-218-700-11	s	METAL, CHIP 2.2K 0.50% 1/16W

(IF-625 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R22	1-218-700-11	s	METAL, CHIP 2.2K 0.50% 1/16W
R23	1-218-668-11	s	METAL, CHIP 100 0.50% 1/16W
R24	1-216-864-11	s	METAL, CHIP 0
RB1	1-236-904-11	s	NETWORK RESISTOR (CHIP) 1.0K
RB2	1-236-904-11	s	NETWORK RESISTOR (CHIP) 1.0K
RB3	1-236-904-11	s	NETWORK RESISTOR (CHIP) 1.0K

FRAME

Ref. No. or Q'ty	Part No.	SP	Description

CNU-700

1pc	1-774-837-11	s	CONNECTOR, D-SUB 15P, MALE
1pc	3-603-243-01	o	PANEL, HKCF
2pcs	3-711-228-01	o	STANDOFF, D-SUB CONNECTOR

CN12(to MB-562 board)

1-580-591-11		o	HOUSING, 30P
1-580-599-11		o	CONTACT, FEMALE AWG22-30

CN14(to MB-562 board)

1-580-582-11		o	HOUSING, 12P
1-580-599-11		o	CONTACT, FEMALE AWG22-30

CN15(to CN-1001 board)

1-580-591-11		o	HOUSING, 30P
1-580-599-11		o	CONTACT, FEMALE AWG22-30

CNU-500

CN6(to IF-625 board)

1-695-214-11		o	HOUSING, 15P
1-695-215-11		o	CONTACT, FEMALE AWG26-30

CN9(to AT-100 board)

1-695-214-11		o	HOUSING, 15P
1-695-215-11		o	CONTACT, FEMALE AWG26-30

2-3. Supplied Accessories

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-956-085-11	o	SUB HARNESS (CNU-500)
1pc	1-956-086-11	o	SUB HARNESS (CNU-700)
1pc	1-956-323-11	o	HARNESS (RS422)
1pc	3-200-199-01	o	PC BOARD SPACER

Section 3
Semiconductor Pin Assignments

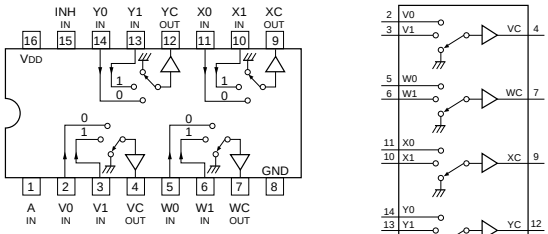
ここに記載されている半導体は，それぞれの機能を等価的に表したものです。　なお，互換性のない型名を併記していることがありますので，部品を交換するときは，Spare Partsの章を参照してください。
等価回路はＩＣメーカーのデータブックに従いました。

Semiconductors of which functions are equivalent are described here. For parts replacement, refer to the section of Spare Parts in this manual. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

IC

SN74HC157APW(TI)FLAT PACKAGE
SN74HC157APW-E05

C-MOS QUAD 2-LINE-TO-1-LINE DATA SELECTOR/ DEMULTIPLEXER
—TOP VIEW—



NOTE:

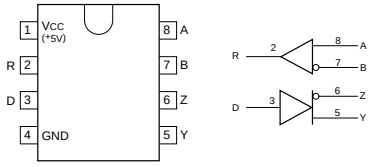
TYPE	VDD
74ACT/74FCT	+5V
TC74AC157P TC74AC157	+2 to +5.5V
TC40H	+2 to +8V
OTHER TYPES	+2 to +6V

CONT.IN		ON
INH	A	CHANNEL
0	0	0
0	1	1
1	X	GND

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

SN75179BPS(TI)FLAT PACKAGE
SN75179BPS-E05

DIFFERENTIAL BUS DRIVER/RECEIVER
-TOP VIEW-



-DRIVER-

INPUT	OUTPUTS	
D	Y	Z
H	H	L
L	L	H

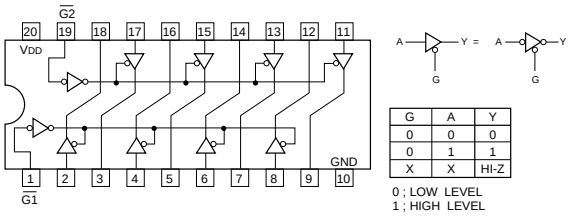
-RECEIVER-

DIFFERENTIAL INPUTS A–B	OUTPUTS R
VID ≧ 0.2V	H
–0.2V < VID < 0.2V	?
VID ≧ –0.2V	L

H = HIGH LEVEL　L = LOW LEVEL　? = INDETERMINATE

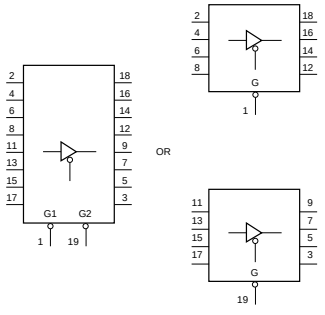
SN74HC244APW-E05(TI)

C-MOS BUS BUFFER WITH 3-STATE OUTPUTS
—TOP VIEW—



G	A	Y
0	0	0
0	1	1
X	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

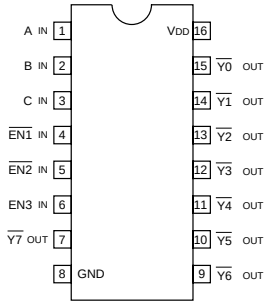


NOTE:

TYPE	VDD
AC HC 40H	+2 to +6V
ACT BCT FCT HCT	+5V
TC74AC244 TYPE TC74VHC244	+2 to +5.5V

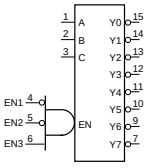
SN74HC138APW-E05(TI)FLAT PACKAGE
SN74HC138APW-E05

C-MOS 3-TO-8 LINE DECODER / DEMULTIPLEXER
—TOP VIEW—



NOTE:

TYPE	VDD
74HCT138 TYPE	+5V
74ACT138 TYPE	+4.5 to +5.5V
TC74AC138 TYPE TC74VHC138	+2 to +5.5V
OTHER TYPES	+2 to +6V



INPUTS				OUTPUTS							
EN	C	B	A	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
0	X	X	X	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1	1	1	0	1
1	0	1	0	1	1	1	1	1	0	1	1
1	0	1	1	1	1	1	1	0	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1
1	1	0	1	1	1	0	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1	1	1

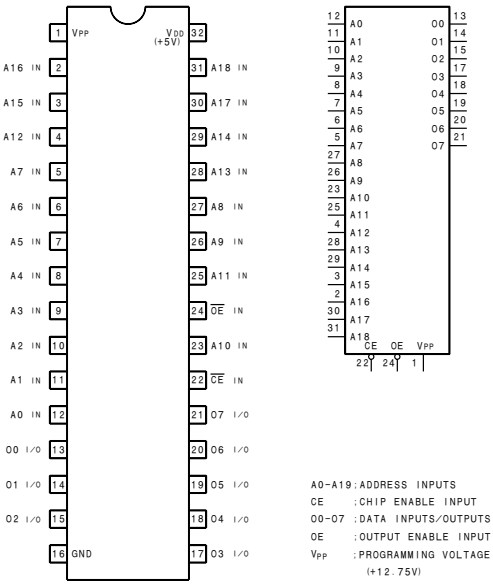
EN = $\overline{EN1}$ • $\overline{EN2}$ • EN3

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

M27C4001-12F1(SGS)

C-MOS 4M-BIT UV EPROM

-TOP VIEW-

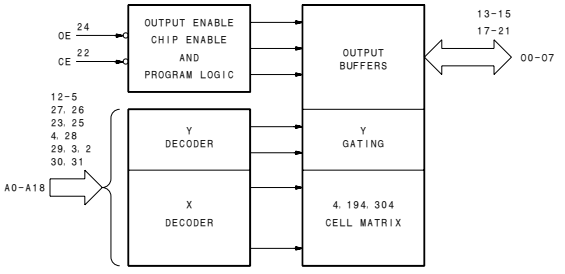


A0-A19 ; ADDRESS INPUTS
CE ; CHIP ENABLE INPUT
O0-O7 ; DATA INPUTS/OUTPUTS
OE ; OUTPUT ENABLE INPUT
VPP ; PROGRAMMING VOLTAGE INPUT (+12.75V)

PINS					MODE
CE	OE	A9	VPP	O0-O7	
0	0	x	x	D OUT	READ
0	1	x	x	HI-Z	OUTPUT DISABLE
1	x	x	x	HI-Z	STAND BY
0	1	x	VPP	D IN	PROGRAM
1	0	x	VPP	D OUT	PROGRAM VERIFY
1	1	x	VPP	HI-Z	PROGRAM INHIBIT
0	0	+12V	VPP	CODE	ELECTRONIC SIGNATURE

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

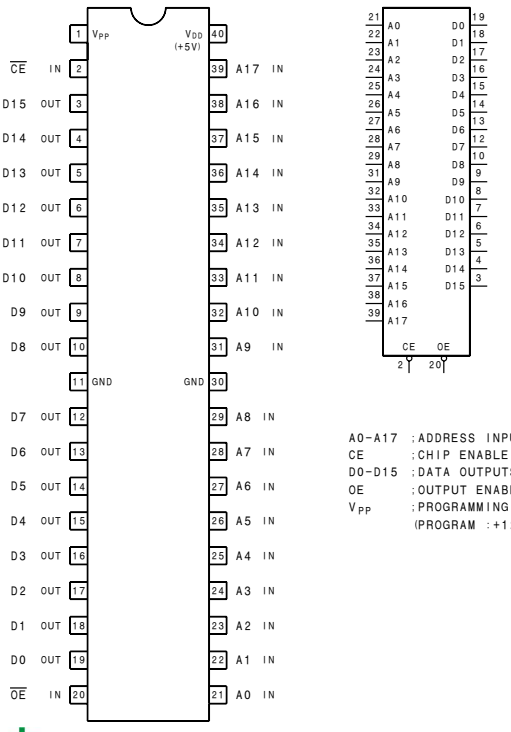
INDENTIFIER	A0	CODE DATA								
		O7	O6	O5	O4	O3	O2	O1	O0	
MANUFACTURER CODE	0	0	0	1	0	0	0	0	0	20
DEVICE CODE	1	0	1	0	0	0	0	0	1	41



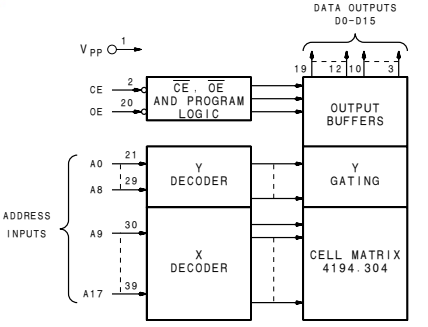
M27C4002-12F1(SGS)

C-MOS 4M(256kx16)-BIT UV EPROM

-TOP VIEW-



A0-A17 ; ADDRESS INPUTS
CE ; CHIP ENABLE
D0-D15 ; DATA OUTPUTS
OE ; OUTPUT ENABLE
VPP ; PROGRAMMING VOLTAGE (PROGRAM ; +12.75V)



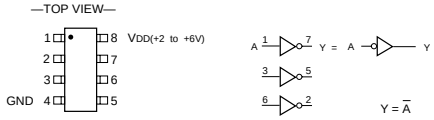
ABOVE DIAGRAM SHOWS CONDITIONS BEFORE PROGRAMMING.

CE	OE	A9	VPP	OUTPUT	FUNCTION
0	0	x	x	DOUT	READ
0	1	x	x	HI-Z	OUTPUT DISABLE
0	1	x	VPP	DIN	PROGRAM
1	0	x	VPP	DOUT	VERIFY
1	1	x	VPP	HI-Z	PROGRAM INHIBIT
1	x	x	x	HI-Z	STANDBY
0	0	VH	VDD	CODE	ELECTRONIC SIGNATURE

1 ; HIGH LEVEL
0 ; LOW LEVEL
x ; DON'T CARE
HI-Z ; HIGH IMPEDANCE
VH ; 12.0±0.5V

TC7W04FU(TOSHIBA)CHIP PACKAGE
TC7W04FU(TE12R)

C-MOS HEX INVERTERS

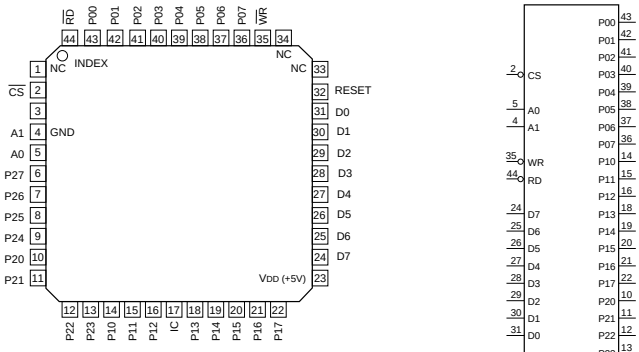


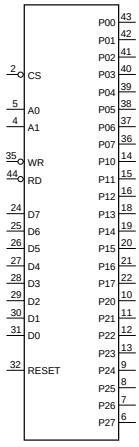
A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

UPD71055GB-10-3B4(NEC)FLAT PACKAGE

C-MOS PARALLEL INTERFACE UNIT
—TOP VIEW—



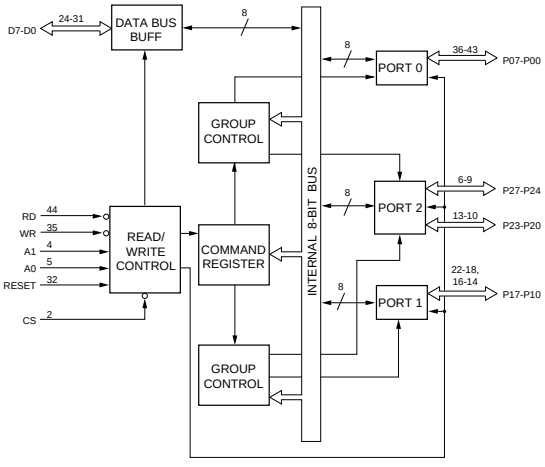


A1, A0 ; ADDRESS
CS ; CHIP SELECT
D7-D0 ; DATA BUS
P07-P00 ; PORT 0
P17-P10 ; PORT 1
P27-P20 ; PORT 2
RD ; READ STROBE
WR ; WRITE STROBE

IC ; INTERNALLY CONNECTED

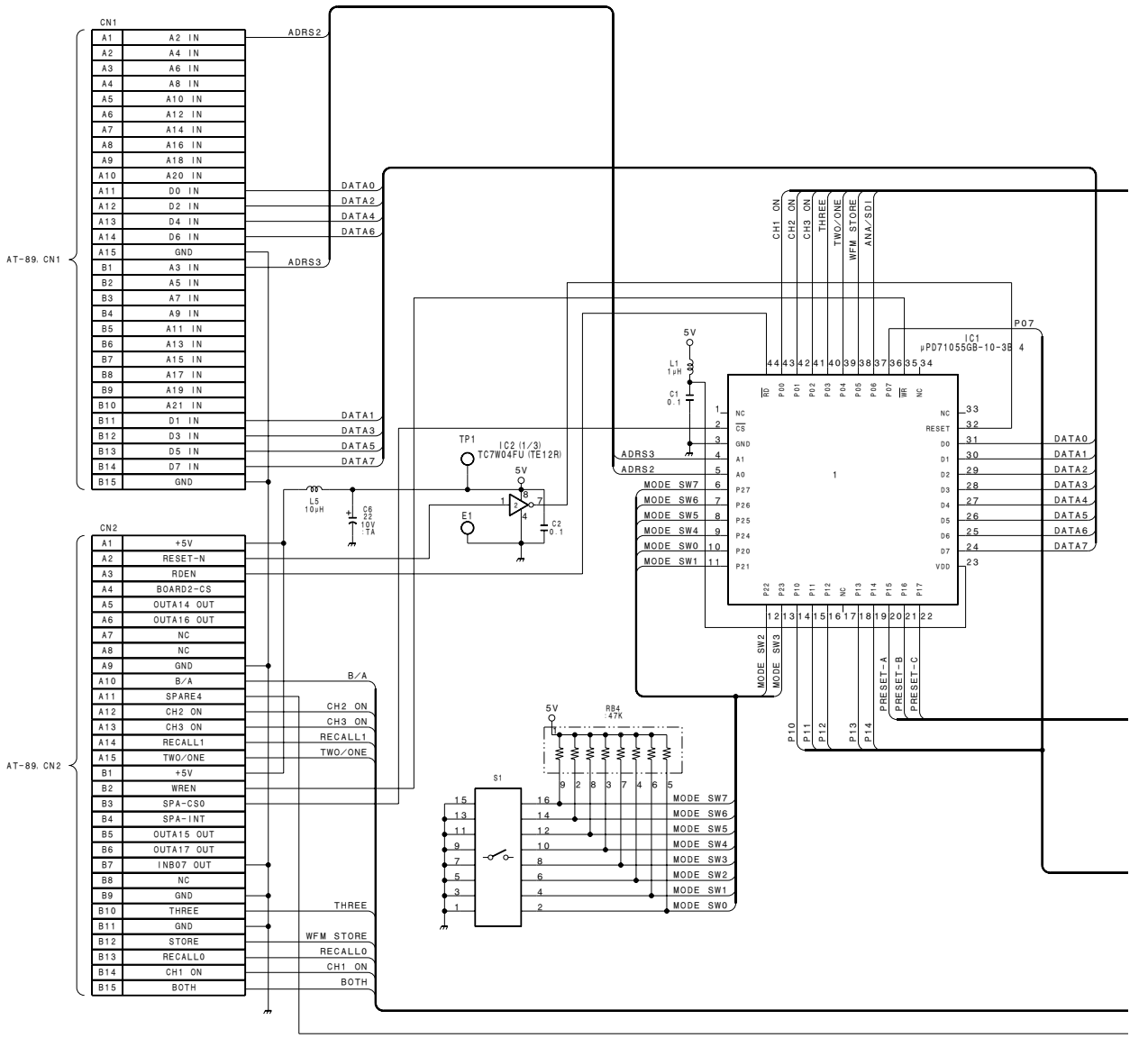
CS	RD	WR	A1	A0	OPERATION	CPU ACTION
0	0	1	0	0	PORT0→DATA • BUS	INPUT
0	0	1	0	1	PORT1→DATA • BUS	INPUT
0	0	1	1	0	PORT2→DATA • BUS	INPUT
0	0	1	1	1	DISABLE	
0	0	0	X	X		
0	1	0	0	0	DATA • BUS→PORT0	OUTPUT
0	1	0	0	1	DATA • BUS→PORT1	OUTPUT
0	1	0	1	0	DATA • BUS→PORT2	OUTPUT
0	1	0	1	1	DATA • BUS→COMMAND REGISTER	OUTPUT
0	1	1	X	X	HIGH IMPEDANCE	
1	X	X	X	X		

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



Section 4
Schematic Diagrams

HKCF-700


CN1
A1 A2 IN
A2 A4 IN
A3 A6 IN
A4 A8 IN
A5 A10 IN
A6 A12 IN
A7 A14 IN
A8 A16 IN
A9 A18 IN
A10 A20 IN
A11 D0 IN
A12 D2 IN
A13 D4 IN
A14 D6 IN
A15 GND
B1 A3 IN
B2 A5 IN
B3 A7 IN
B4 A9 IN
B5 A11 IN
B6 A13 IN
B7 A15 IN
B8 A17 IN
B9 A19 IN
B10 A21 IN
B11 D1 IN
B12 D3 IN
B13 D5 IN
B14 D7 IN
B15 GND
AT-89. CN1
ADRS2
DATA0
DATA2
DATA4
DATA6
ADRS3
DATA1
DATA3
DATA5
DATA7
CN2
A1 +5V
A2 RESET-N
A3 RDEN
A4 BOARD2-CS
A5 OUTA14 OUT
A6 OUTA16 OUT
A7 NC
A8 NC
A9 GND
A10 B/A
A11 SPARE4
A12 CH2 ON
A13 CH3 ON
A14 RECALL1
A15 TWO/ONE
B1 +5V
B2 WREN
B3 SPA-CS0
B4 SPA-INT
B5 OUTA15 OUT
B6 OUTA17 OUT
B7 INB07 OUT
B8 NC
B9 GND
B10 THREE
B11 GND
B12 STORE
B13 RECALL0
B14 CH1 ON
B15 BOTH
AT-89. CN2
B/A
CH2 ON
CH3 ON
RECALL1
TWO/ONE
THREE
WFM STORE
RECALL0
CH1 ON
BOTH
L5 10μH
C6 22 10V :TA
TP1
IC2 (1/3) TC7W04FU (TE12R)
5V
E1
C2 0.1
L1 1μH
C1 0.1
IC1 μPD71055GB-10-3B 4
CH1 ON
CH2 ON
CH3 ON
THREE
TWO/ONE
WFM STORE
ANA/SDI
P07
MODE SW7
MODE SW6
MODE SW5
MODE SW4
MODE SW0
MODE SW1
MODE SW2
MODE SW3
RB4 :47K
S1
PRESET-A
PRESET-B
PRESET-C
P10
P11
P12
P13
P14

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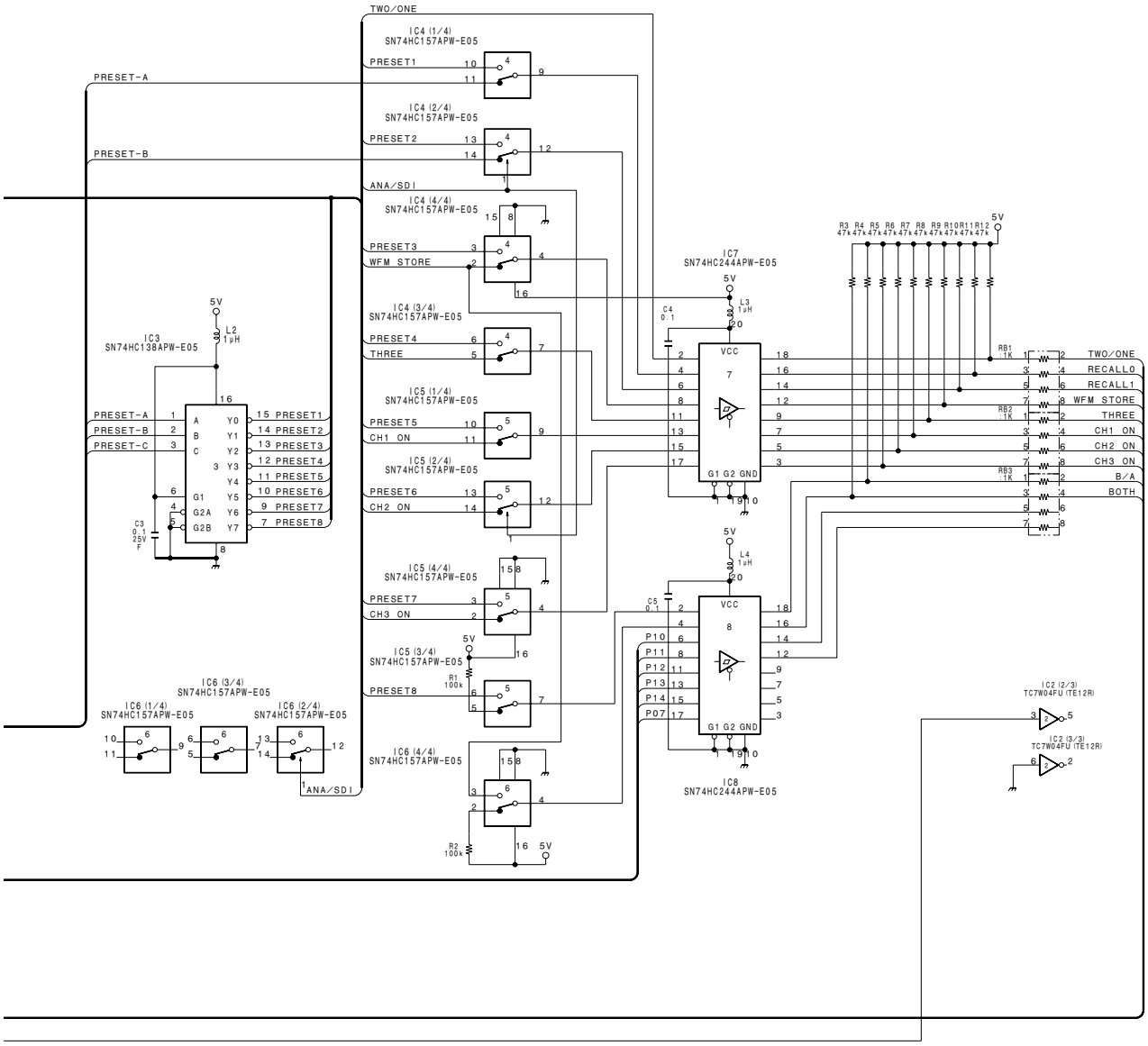
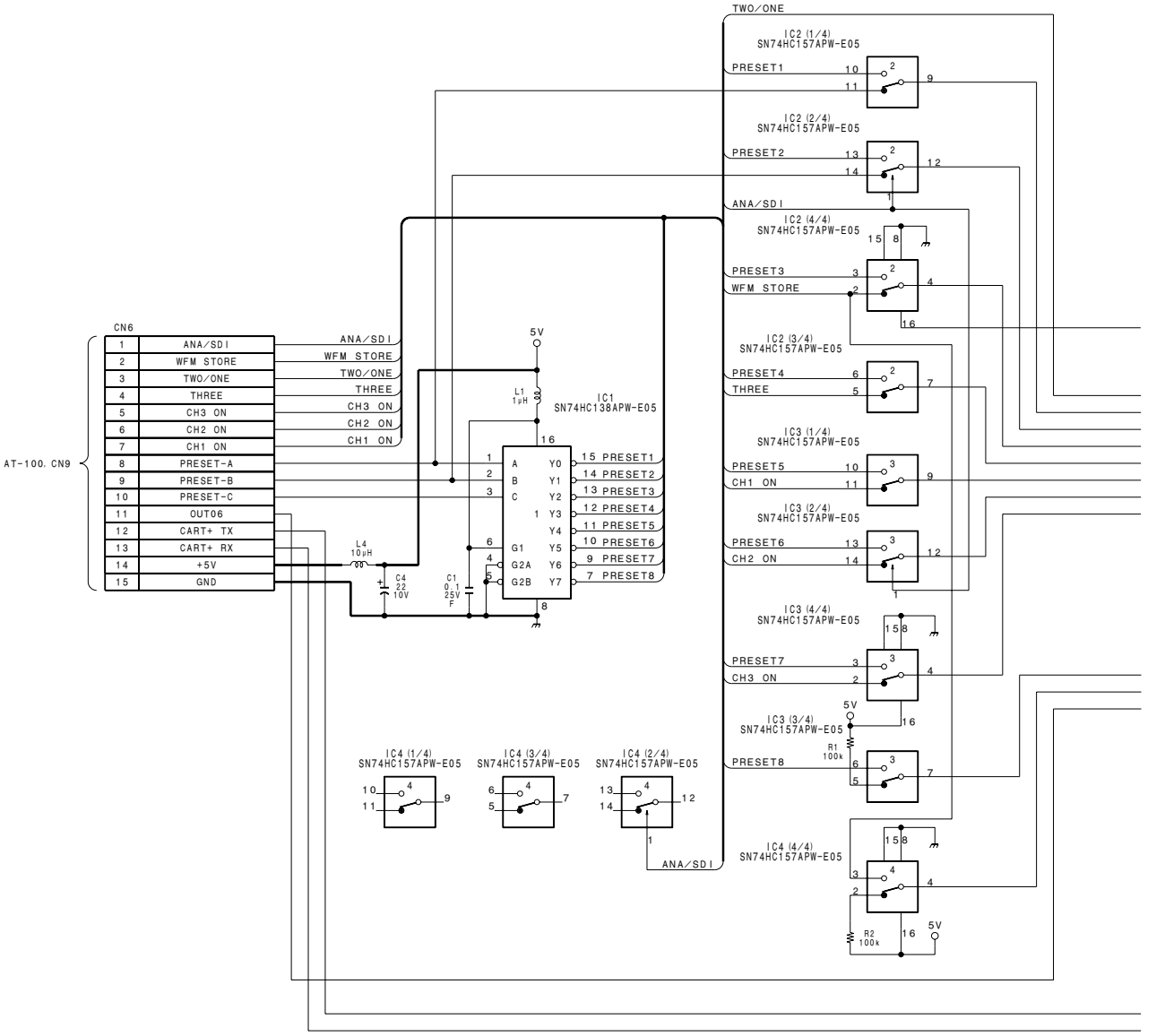
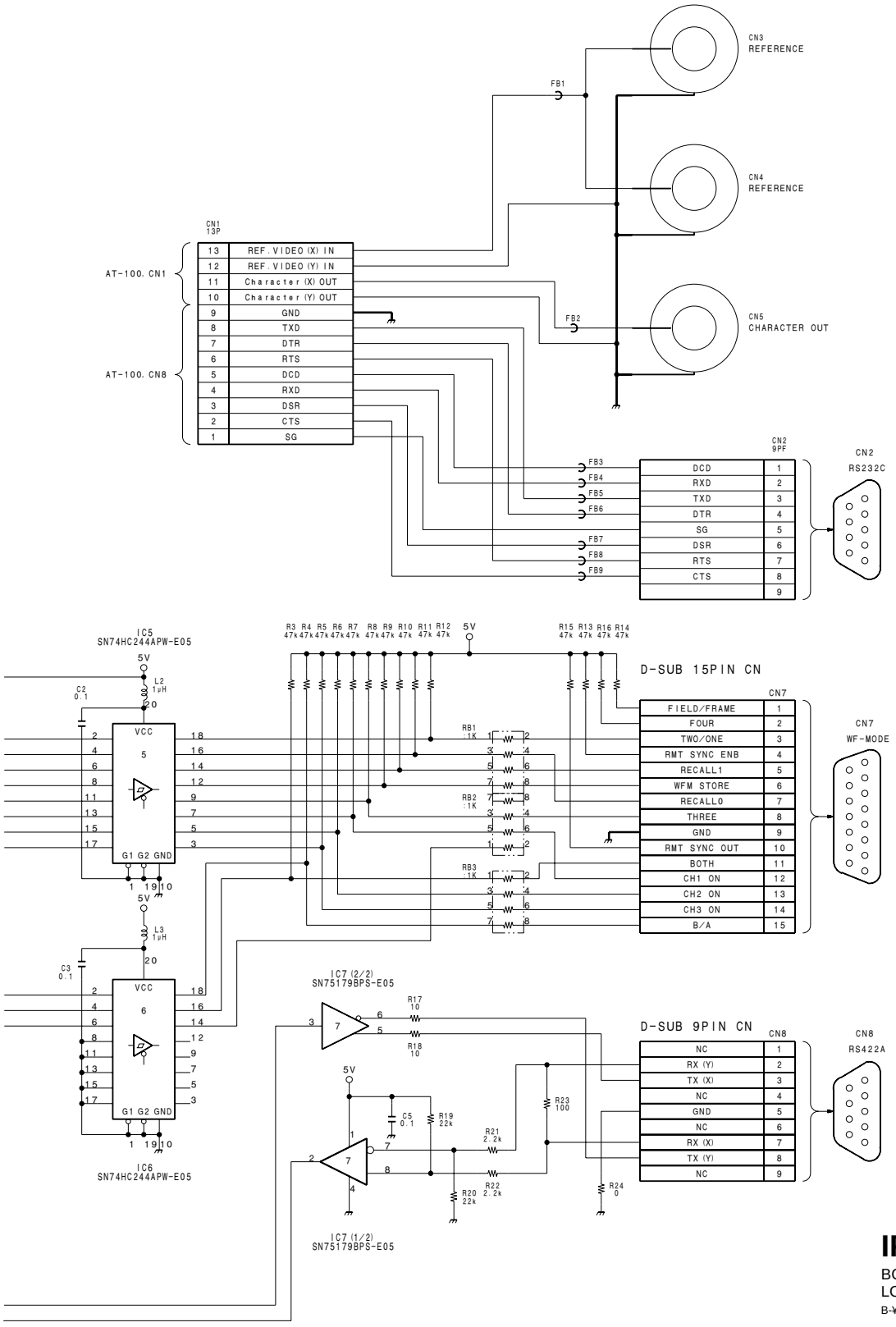


IF-624

BOARD NO. 1-660-092-11/12
LOT NO. 512-
B-¥HKCF700-IF624-11

HKCF-700

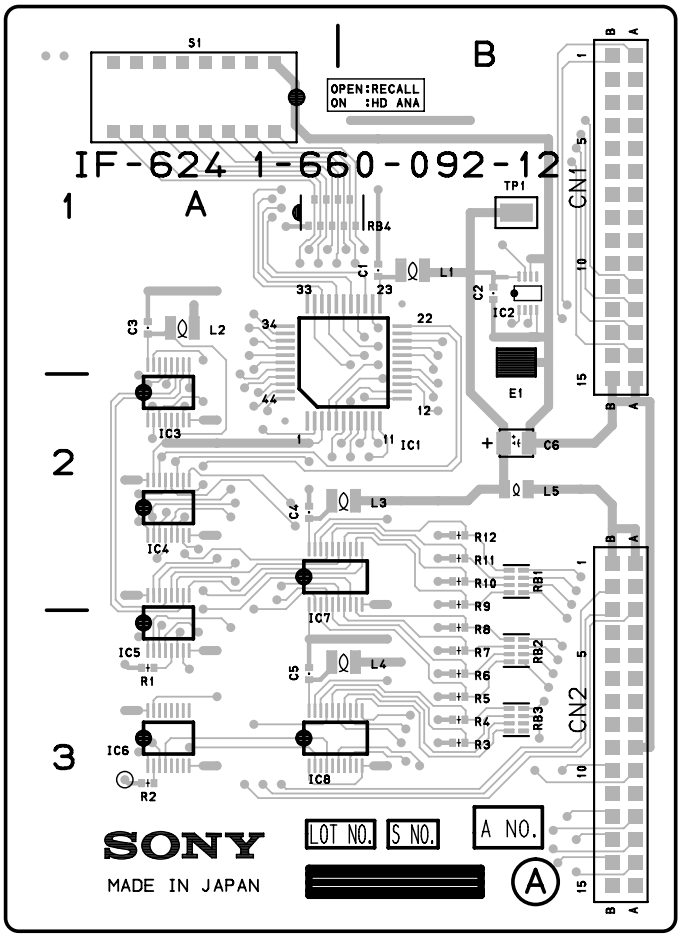

CN6
AT-100, CN9
ANA/SDI
WFM STORE
TWO/ONE
THREE
CH3 ON
CH2 ON
CH1 ON
PRESET-A
PRESET-B
PRESET-C
OUT06
CART+ TX
CART+ RX
+5V
GND
L1 1μH
L4 10μH
C4 22 10V
C1 0.1 25V F
IC1 SN74HC138APW-E05
IC2 (1/4) SN74HC157APW-E05
IC2 (2/4) SN74HC157APW-E05
IC2 (4/4) SN74HC157APW-E05
IC2 (3/4) SN74HC157APW-E05
IC3 (1/4) SN74HC157APW-E05
IC3 (2/4) SN74HC157APW-E05
IC3 (4/4) SN74HC157APW-E05
IC3 (3/4) SN74HC157APW-E05
IC4 (1/4) SN74HC157APW-E05
IC4 (3/4) SN74HC157APW-E05
IC4 (2/4) SN74HC157APW-E05
IC4 (4/4) SN74HC157APW-E05
R1 100k
R2 100k
5V
PRESET1
PRESET2
PRESET3
PRESET4
PRESET5
PRESET6
PRESET7
PRESET8
TWO/ONE
ANA/SDI
WFM STORE
THREE
CH1 ON
CH2 ON
CH3 ON



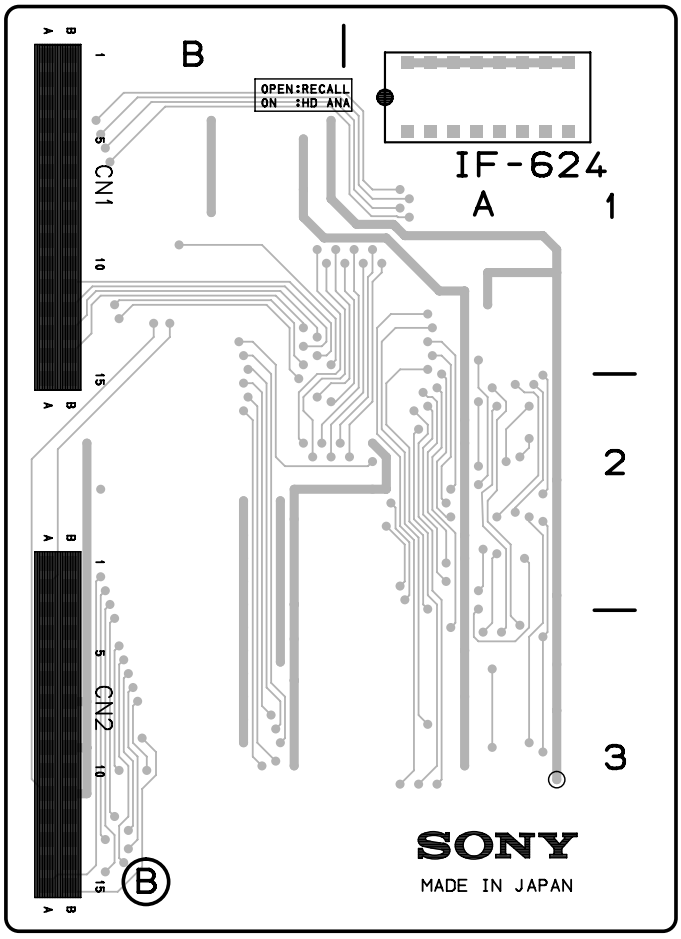
IF-625

BOARD NO. 1-660-080-11
LOT NO. 512-
B-¥HKCF700-IF625-11

Section 5
Board Layouts



IF-624 -A SIDE-
1-660-092-11, 12



IF-624 -B SIDE-
1-660-092-11, 12

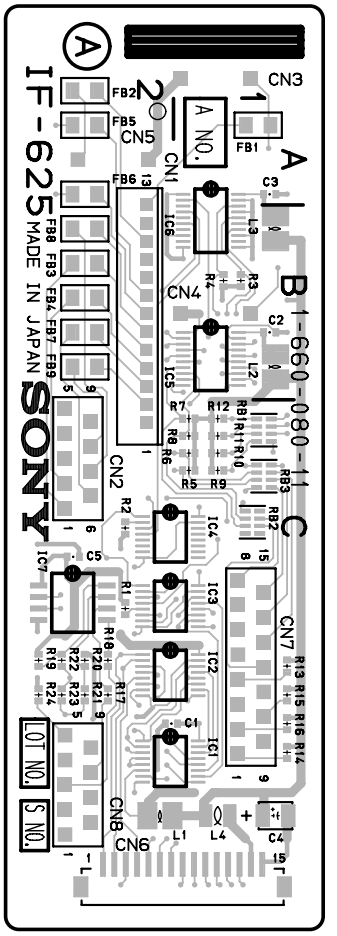
IF-624(1-660-092-11,12)

C1	B1	L1	B1	RB2	B3
C2	B1	L2	A1	RB3	B3
C3	A1	L3	B2	RB4	A1
C4	A2	L4	B3		
C5	A3	L5	B2	S1	A1
C6	B2				
		R1	A3	TP1	B1
CN1	B1	R2	A3		
CN2	B3	R3	B3		
		R4	B3		
E1	B1	R5	B3		
		R6	B3		
IC1	B1	R7	B3		
IC2	B1	R8	B3		
IC3	A2	R9	B2		
IC4	A2	R10	B2		
IC5	A3	R11	B2		
IC6	A3	R12	B2		
IC7	A2				
IC8	A3	RB1	B2		

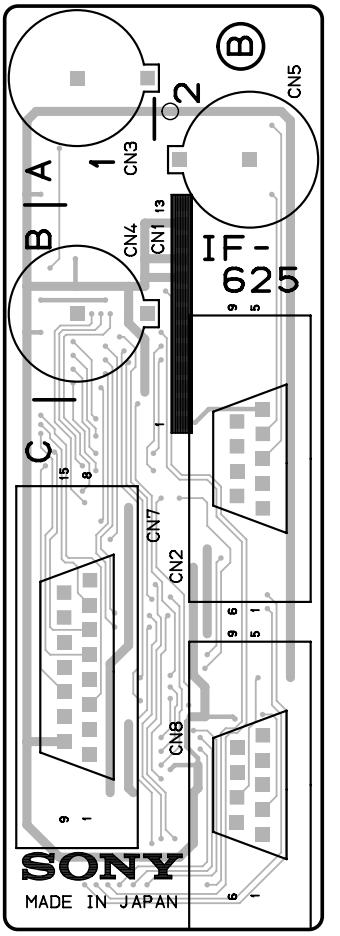
IF-625(1-660-080-11)

C1	C1
C2	B1
C3	A1
C4	C1
C5	C2
CN1	A2
CN2	*C2
CN3	*A1
CN4	*B1
CN5	*A2
CN6	C2
CN7	*C1
CN8	*C2
FB1	A1
FB2	A2
FB3	B2
FB4	B2
FB5	A2
FB6	A2
FB7	B2
FB8	B2
FB9	B2
IC1	C1
IC2	C1
IC3	C1
IC4	C1
IC5	B2
IC6	B2
IC7	C2
L1	C1
L2	B1
L3	B1
L4	C1
R1	C2
R2	C2
R3	B1
R4	B1
R5	C1
R6	C2
R7	C1
R8	C2
R9	C1
R10	C1
R11	C1
R12	C1
R13	C1
R14	C1
R15	C1
R16	C1
R17	C2
R18	C2
R19	C2
R20	C2
R21	C2
R22	C2
R23	C2
R24	C2
RB1	C1
RB2	C1
RB3	C1

*:B SIDE



IF-625 -A SIDE-
1-660-080-11



IF-625 -B SIDE-
1-660-080-11

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